17 AUG 1930

The Bulletin

OF THE

South Indian Medical Union.

Vol. II. | MAY 1930. | No. 5.

CONTENTS.

		PAGE.
1.	GENERAL NOTES ...	83
2.	UNION NOTES ...	84
3.	CORRESPONDENCE ...	85
	(a) RURAL MEDICAL RELIEF.	
	(b) MEDICAL STUDENTS.	
	(c) GENERAL MEDICAL COUNCIL.	
4.	DYSPEPSIA ... By T. Satakopan, M.D.	87
5.	INSULIN IN THE TREATMENT OF DIABETES MELLITUS ... By K. C. Paul, M.B., B.S.	94

NOTICE.

1. The Union does not accept any responsibility for the views and statements of the contributors as published in the Journal; all manuscripts, books for review and letters intended for publication must bear the name and address of the author, not necessarily for publication. All communications should be addressed to the Business Editor.

2. Copy, cuts and blocks for advertisement should reach the Business Editor at least 15 days before the date of issue. Advertising rates will be supplied on application to the Business Editor who will try to accommodate advertiser's request for suitable space, position and proper display of advertisements.

3. Remittances should be made, by crossed cheques, registered letter or money order, payable to the Bulletin, South Indian Medical Union.

4. Medical men and Medical Students will be placed on the free mailing list of the Bulletin on application to the Business Editor.

51, Poonamallee Road, Kilpauk, Madras.

MADRAS MEDICAL COUNCIL ELECTIONS.

Vote for Part I. Dr. V. D Nimbkar.

II. „ *S. Rangachari.*

III. „ U. Rama Rao.

HAVE U SENT YOUR MEMBERSHIP FORM TO THE UNION.

BULLETIN
OF THE
SOUTH INDIAN MEDICAL UNION.
MAY, 1930.

GENERAL NOTES.

Congratulations.—The list of Birthday Honours recently issued contains the names of a number of Medical men and women. Of these, that of Dr. K. Krishnan, a leading Medical Practitioner of Palghat, has to be specially mentioned as one who pioneered Surgery, popularised Private Hospitals in Malabar District and removed the illusion that surgical skill was the monopoly of the European. He receives a well-merited and long over-due "Diwan Bahadur." We hope that in Diwan Bahadur Dr. Krishnan, Madras will soon be brought on a level with other provinces where members of the Independent Medical Profession have the honour of counting "Knights" among them.

Bravo! Diwan Bahadur.

* * *

Our congratulations also go to Rao Bahadur Dr. A. Lakshmanaswamy Mudaliar, B.A., M.D., F.B.C.O.G., who has been admitted as a Foundation Fellow of the lately inaugurated British College of Obstetricians and Gynæcologists. Dr. Mudaliar is one of the original members of the South Indian Medical Union and one of the two Service Members who had the broadness of vision to remain with us when the Service Members resigned *en masse* from the Union. We understand that the only other Obstetrician in India who shares this unique distinction with Dr. Mudaliar is Col. Green Armitage, I. M. S., of Calcutta.

* * *

Inter Universities Conference.—Some representatives of the Medical Faculties of the Indian Universities met in Bombay early in May 1930 and passed very pregnant resolutions affecting the future of Medical Education in this Country. We regret that we cannot subscribe to all the views expressed there. The speech of the Vice-Chancellor of the Bombay University is not in consonance with the views of the Medical Profession. He hopes yet to placate the General Medical Council and is willing, given time, to come in tune with the dictates of that august body. The Medical Profession in this country has been unanimous in its thanksgiving at being rid of this incubus and having now the opportunity to develop Medical Education on lines best suited to local conditions. As we anticipated, the University Representatives have taken an astonishing standpoint in claiming to be the sole arbiters of the Standard of Medical Education in India. The Public who are most vitally affected by it and the General Practitioner who best knows what the Country needs seem to have no place in their scheme. The late Sir James Mackenzie observed that in Medical Affairs, the party most interested and affected by any change is the one who is never consulted before such changes are promulgated. A better example of the truth of the

above observation cannot be had than the attitude of these University Representatives. We are not the least bit surprised at this, knowing as we do that members of the Paid Medical Services formed the bulk of these representatives. We still maintain our standpoint that no changes, however exalted the quarters which inspire these, in the minimum standard of Medical Education will be acceptable unless approved by representatives of the General Public and the Independent Medical Profession.

* * * *

Medical Students.—It would be profitable to see how the present makeshift reforms introduced in the Medical Colleges are affecting the students. Whatever might be their educational value, it is obvious that no consideration has been shown for the convenience of the students. They have no vacation, have to slog in the hospitals and wander between distant institutions even during the dog-days of the Madras Summer, while their teachers are reinvigourating themselves in pleasanter and more elevated surroundings. The arrangement of the curriculum and the distribution of work offer considerable scope for improvement. The existing arrangement does not provide even for the simplest necessities of nature.

* * * *

We would like, in this connection, to impress on the students that the majority of them form the future recruits to the Independent Medical Profession and that no one is more interested in their progress and welfare than the UNION. It is desirable to be in touch with each other and as such

Students can have the BULLETIN free on applying to the Secretary of the Union.

* * *

Present Unrest.—As anticipated in our last issue the present political upheaval has affected the members of the Medical Profession. Quite a number of medical men and women have taken active part in it. Whether they would not be more useful to their country in their professional capacity is a question which deserves serious consideration. Enlistment for active struggle leads to undesirable depletion and one which we cannot afford. This view is further strengthened by the result of our enquiries which show that active participants would prefer non-Government medical aid.

We had commented on reports of violation of the sanctity of Medical Institutions and Medical Personnel. As such it is very refreshing to commend the authorities at Untadi, Bulsar and Wadala, (three storm centres in the Bombay Presidency), on their help to the Red Cross Workers and Institutions.

UNION NOTES.

(*Honorary Secretaries*)

The Annual General Meeting of the Union will be held at the Y. M. C. A. Auditorium, Esplanade, Madras, on Monday, the 16th June 1930.

* * *

Dr M. Vijayaraghavalu, B.A., M.B., & C.M., will read a paper on "The Work Ahead of Us" on that day.

* * *

Members who are in arrears are requested to send them to Dr. P. Rama Rao, 56, Thambu Chetti St., G.T., Madras. Rules disqualify anyone who is in arrears for more than 3 months from exercising the privileges of membership.

* * *

Minutes of an emergency meeting of the Governing Body held on Tuesday, 29th April 1930, at Kensington, Poonamallee Road, Madras.

PRESENT :—

Dr. S. Rangachari, *President.*

,, U. Rama Rau, *Vice-President.*

,, E. V. Srinivasan.

,, U. K. L. Narayana Rao.

,, M. V. Sundaresan.

,, C. R. Krishnaswamy.

,, T. Satakopan.

,, U. Venkata Rao.

,, P. Varadachary.

,, P. Rama Rao.

,, T. Krishna Menon.

The object of calling the meeting, viz., to discuss the situation arising out of the disturbances and the measures to be taken, was discussed.

Resolved: 1. "That the South Indian Medical Union do raise an Ambulance Corps."

2. "That Drs. U. Rama Rao, P. Rama Rao, and S. Rangachari do form a committee to discuss and report to the Governing Body, the working details of the same."

The above resolutions were moved from the Chair and unanimously passed.

CORRESPONDENCE.

'RURAL MEDICAL RELIEF.'

I am a layman with some knowledge of the rural and economic conditions existing in the rural areas of our Presidency. I have a great respect for the members of the medical profession. *Some of my best friends are doctors* and that is my only excuse for writing this note. I address my remarks largely to the non-official medical practitioners.

They form the majority of the men engaged in medical relief in this Presidency. Many of them are said to be unable to earn a competence. I suppose this is true. But need it continue to be so? I am certain that it need not and here are the grounds for my opinion.

Men of affairs speak of real income and nominal income. When it is said that many *doctors do not* earn a

competence in the rural areas, do they not think of their income in silver? Are there not things like paddy and pumpkins, brinjals and bundakais? No man should consider himself ill off if he can ensure the arrival of these gifts in season.

In season.—Here is the crux of the problem. *Many are inclined to expect* a fee, as they leave the sick-house. But does the villager find his brinjal plants in fruit or his paddy pots full, as soon as he has transplanted the seedlings? Look at the ways of the Government itself? Does it not wait for 9 months before it collects the kist? So here is the first requisite for success in the village. *You must wait till your client is in a position to pay you.* For he *will* pay and in full measure, if you give him time and take the fees in kind.

The second requisite for success in the village is adaptability and patience. You must be able to sit on mud floors, mats, planks and sit long enough to satisfy the villager. Many blessings will be yours, incidentally, in achieving this desirable end. No outlay on shoes, and the *ensemble* of clothes which terminate in shoes. The village dhoby may be entrusted to wash your clothes free, in return for your service.

To those who are in charge of rural dispensaries (there are nearly 400 of these men and they will be many more) I wish to say something more. The subsidy paid by the Government to the taluk boards, has been raised from 400 to 500 per year for an L.M.P. and 600 for a medical graduate. In specially unhealthy areas, the amount is larger. These figures are not anything 'final'. With luck, they may be increased a little more. The subsidy for a midwife has also been raised from Rs. 100 to Rs. 300. These figures, again, may conceivably go up. Equipped with a good midwife, there is a fair chance for a man with any grit in him to earn a competence. For in my experience, confinement is an occasion when the stingiest villager wishes to make a prompt payment to the doctor.

I am averse to gushing in any form. But I cannot help feeling that the co-operation of the medical practitioner in the work of rural reconstruction (whatever this pretentious phrase means) will be more fruitful than that of any other class of men I can think of. He can be a real messenger of hope. For what the villager wants (though he may not know it) is knowledge of modern methods.

Madura. *R. F.*

MEDICAL STUDENTS.

Your Bulletin is taking up of the cause of Medical Education but seem to have lost sight of one important element, the Medical Student. He has no vacation as his terms extend right through the 12 months of the year and his time table is so arranged as to necessitate perambulations all over the City during the day. Can something not be done to ameliorate his lot. Following the curriculum in England is all right, but one cannot import the English climate into this country.

A Medico.

GENERAL MEDICAL COUNCIL.

How can you justify the Union's attitude to the recent decision of the General Medical Council after your severe condemnation of the system of Medical Education as it exists in this Presidency? Was it only another exhibition of *hysterics*?

Medical Register (*U. K.*)

BULLETIN
OF THE
SOUTH INDIAN MEDICAL UNION.
MAY, 1930.

DYSPEPSIA *

By T. Satakopan, M.D.
(*Honorary Physician, Government Royapuram Hospital*).

The term *dyspepsia* is in very common use. It is frequently the refuge of the practitioner and the physician hard put to diagnose some of the vague disorders of the patients. More often the patient walks into the consulting room self-labelled with this word. It is therefore pertinent, at the very outset, to know what is generally meant by this term. Some writers restrict this term to what are known as functional disorders of the stomach, to be more accurate, the upper alimentary tract, as against organic gastric lesions. Others use it in a more comprehensive way. When a person is abnormally conscious of the existence of a stomach, these authors would say that the patient is dyspeptic. It is in this latter sense that I propose to deal with this subject to-night.

People are reminded of the presence of the stomach under a great variety of circumstances; but the method or manner in which they are so reminded is more or less common and characteristic. There is generally some loss of appetite; occasionally there may be a morbid craving for food, nausea and sometimes vomiting, pain or discomfort and fullness in the epigastrium; often heartburn and flatulence. Cullen's definition of dyspepsia gives a more exhaustive catalogue of the symptoms. But those that I have mentioned are enough to indicate the manner of manifestation of this condition. The term dyspepsia is used compendiously for the above group of symptoms. When we diagnose dyspepsia, we have only recognised the presence of a group of symptoms and before attempting treatment we have yet to find out the cause which provokes the manifestation of this group of symptoms. I should here like to remind you of the exact analogy of asthma, which is now considered to be a symptom-group and not a disease entity.

Before dealing with the subject of the lecture it is advisable to mention that the older writers referred to dyspepsia and indigestion as synonymous terms. Even to-day this is how the two words are used in common parlance. But indigestion might be due to causes operating in any part of the alimentary tract from the œsophagus to the colon, as evidenced by the use of the terms, gastric indigestion and intestinal indigestion. Now physicians are confining the term dyspepsia to indigestion which arises from disordered functions of the upper alimentary tract, *viz.*, the stomach, the œsophagus and the duodenum.

Dyspepsia is the prevailing malady of civilised life. We are more often consulted about the disorders that belong to eating and drinking than perhaps any other. Its very great frequency induces in the medical man a proneness to adopt rule-of-thumb methods of treatment with little or no attempt in the way of investigation of the underlying cause. This would never be the case if we constantly bear in mind the fact that dyspepsia is after all a group of symptoms always dependent on causes which may be very trivial or very serious. For convenience of investigation these causes may be grouped into three classes:

1. Simple dyspepsia.

* Read at a clinical meeting of the South Indian Medical Union, Madras.

2. Gastric dyspepsia, *i. e.*, of a truly gastric origin.

3. Reflex dyspepsia, *i. e.*, dyspepsia consequent on some other morbid conditions, overlooked on account of the severe dyspeptic condition.

SIMPLE DYSPEPSIA.

We group under this class all those cases of indigestion evanescent or obstinate, without any recognisable anatomical changes in the stomach or the adjoining parts of the alimentary canal. Few of us go through life without this unpleasant experience. The city clerk bolting his meal and walking fast, I may almost say running, to catch the bus or the train, and completing the operation of his dressing on the way, should not be surprised if he gets a fit of indigestion. Apart from this physical violence to the orderly activities of the stomach, emotional upsets are a frequent source of disordered digestion. Most of us are familar with the fact that in states of fear, rage, grief and worry the appetite is often completely knocked out and the sight of food produces a feeling of sickness. But luckily indigestion arising from the above causes is fleeting and easily overcome.

But it is not generally known that simple dyspepsia of an intractable kind is sometimes brought on, not by overeating, not indeed by a surfeit of *the sweetest things which loathing to* the eyes may bring, but by starvation. I am not referring to the condition known as *anorexia nervosa* where, by habitual starvation, the patient gradually loses all appetite for food. This is a condition fairly common in girls who start underfeeding lest they should get bulky. I am here referring to quite a different class of patients. Like any others these patients may happen to get a mild attack of indigestion. After the attack is passed off, the ordinary man resumes his usual diet. But these people *confident of a wisdom greater than that* of their generation, single out some particular articles as the offending cause and eschew it for ever from their dietary. Should these have another attack of dyspepsia, this time probably a little more acute, another article is eliminated from their dietary. Some of these patients have the misfortune to get repeated attacks of indigestion and after every new attack one more article of diet is given up. Thus gradually, more and more articles are shifted from the "allowed" to the "forbidden" column, so that finally all that figures on the first column is slops. The patient is now what is usually known as a chronic dyspeptic. The worse the dyspepsia, the more he starves; the more he starves, the worse the dyspepsia. They thus get into a vicious circle. This endless chain has to be broken before the patient could get well. This is by no means an easy task.

TRUE DYSPEPSIAS.

1. Dyspepsias which are due to demonstrable organic changes in the stomach itself. They are chronic gastritis, ulcers gastric and duodenal and cancer.

2. Functional disorders of the stomach.

Dyspepsias due to these causes are *generally associated with pain. Sometimes* pain may not be a prominent symptom. But when present, the pain has always a time relation to food. It is more or less true to say that epigastric pain which comes on at any time, that is, without any particular reference to the time of food, is not likely to be of truly gastric origin.

Chronic Gastritis.—Chronic alcoholism and heedless violence to the

stomach by indiscreet dietary indulgence are the common causes. Bilious morning vomiting or vomiting of large quantities of mucus is usual in these cases. X-rays and test meal may not reveal any diagnostic signs, but the presence of occult blood in the stool is said to be a certain sign of chronic gastritis.

Gastric and duodenal ulcers.—Definite time relation of pain and food and the presence of a definitely localised tender spot in the epigastrium are the most significant signs.

Cancer.—Dyspepsia occurring in old people for the first time without *definite indiscretion or disease elsewhere* should always create a suspicion of cancer. It is very necessary to remember this, for it is only at this stage when dyspepsia is the only symptom that surgical help would be of any use. I have known a case where the patient suffered from dyspepsia for years, an occasional dose of Soda Bicarb. used to give him complete relief. After some years he was suddenly taken ill with symptoms of intestinal obstruction. When the abdomen was opened, well developed cancer of the stomach was seen. The patent never gave any signs and symptoms of cancer during life.

In the investigation of these dyspepsias of truly gastric origin, advantage should certainly be taken of all the available modern technique of X-rays and barium meal examination and gastric analysis.

Dyspepsias due to functional disorders of the stomach.—Various writers have attempted to classify these in various ways. Some have classified them on a physiological basis as sensory, secretory and motor disorders. Others have attempted an etiological classification as those due *to dietetic causes, physical causes,* mental and emotional causes. Neither of these classifications helps us very much in our every day practice. We know that dyspepsia is associated with more or fewer of a number of symptoms. How actually each of these symptoms is produced, we do not yet know fully. But we know two things about these symptoms: (1) That Alkali exhibited before meals gives more or less relief in almost all cases, (2) *that after food some cases get relief* with acid and others with alkalies. Taking advantage of these facts Leonard Williams, in his extremely useful little book with which most of us are familiar, has roughly divided these dyspepsias into two clinical types, *i. e.*, the hyperacid and the hypoacid types of dyspepsias. He gives a number of distinguishing symptoms of each. Shortly, the hyperacid or sthenic dyspeptics are robust people with a keen appetite who eat well. Heartburn *and flatulence are characteristic* features. Sometimes heartburn and flatulence may alternate. As one of Ewald's patients put it, "Sometimes he had within him a vinegar manufactory, at other times a gas-works." The pain in the epigastrium comes on a few hours after food and the pain is relieved by the food The tongue is firm and furred, Alkali after meals prevents the pain. On the other hand, the hypoacid or aesthenic type of dyspeptic is generally delicate and poor in health. *In these patients, the appetite is poor,* or if they sit down to their meal with *a keen appetite, the first few mouthfuls* satisfy their hunger and they are unable to take any more. Food generally brings on pain; in some cases the pain starts even as the patients are in the midst of their meal. The tongue is flabby, clean, and sometimes glazed. Acid with or after their meal relieves and prevents the pain. Heartburn and flatulence are not marked features of these cases. In my earlier days. I used to be quite glad when a patient

came to me with symptoms of dyspepsia. I had only to go over his complaint and look at his tongue and straightway label him as a sthenic or an aesthenic case and treat him accordingly with alkali or acid as indicated. I soon found that treatment of dyspeptic conditions was not so easy as Leonard Williams apparently makes it out to be. One often comes across cases which undoubtedly lead one to think that acids are indicated in their treatment. But acid aggravated the trouble and when much against your conviction you prescribe alkalies, the patients show a grateful response. It will be found that most of these cases are associated with morbid conditions elsewhere, which undermine the general health of the patient, who here presents a picture of an anaemia and the dyspeptic symptoms are merely the reflex response of the stomach.

Again there are a good number of cases which show an undoubted picture of the hyperacid type of dyspepsia. The response to treatment with alkali after meals is neither so prompt nor complete. Though these patients have a feeling of acidity in the stomach as evidenced by heartburn and flatulence, it is probable that there is no actual increase in the acid content of the stomach. But due to an excessive sensitiveness, the stomach or rather the œsophagus and the minute cardiac orifice, are irritated by the normal acidity of the gastric juice which producing thereby heartburn and swallowing of air and the consequent flatulence. These patients are probably the so called vagotonics who respond very well when bromides and belladonna are added to sedative alkalies like bismuth and cerium oxalate.

Further, in certain cases of chronic gastritis, though there is actually a less than normal acidity or complete absence of acid in the stomach, yet these patients suffer from heartburn and flatulence. Such patients are elderly obese women over 40 years, or prosperous men of the trader class with sedentary occupations who indulge a little too much or too often in the good things of the table. These people often consult us for what they call "windy spasm." I have already said that alkalies before food relieves their distress and sometimes alkali after food also may help by removing the mucus and allowing the little acid in the gastric juice to come into contact with food. The results are better when bitters are added to the prefood alkali mixture.

Some patients give symptoms which are difficult to distinguish from well developed duodenal ulcers. The time relation to food is very definite the pain coming on 3 to 4 hours after food. Heartburn and flatulence are present, vomiting not being prominent. Testmeal shows no increase in free HCL of stomach contents, nor X-rays any definite signs. One such case which I recently sent for Barium meal came back marked "chronic appendix inflammation." On the table the appendix was perfectly normal. But still the surgeon removed the appendix. Patient's symptoms have not disappeared yet. These cases are very likely due to a mere hyperæsthetic state of the stomach or œsophagus. It will not do to recommend operation in a hurry in such cases.

I hope I have said enough to show that dependence on the subjective feelings of the patient or on the results of drugging is not always a safe guide to diagnose the underlying cause of the dyspepsia. Testmeal and gastric analysis are indispensable to know the actual functional disturbance of the stomach.

Dyspepsias dependent on some other morbid conditions.—Very important as are the group of dyspepsias men-

tioned above, it often happens that in a great many cases, the stomach itself *is less to blame than some other organs* of the body. "Iron stomachs" seem to be rather rare; on the other hand, *the stomach is easily thrown out of* gear by trouble elsewhere. Barton and Yater in their "Sympton Diagnosis" enumerate about 34 conditions as producing dyspepsia. Not satisfied with this list, they give another catalogue of 17 conditions as less common causes. I do not propose to weary you with this list, but I would just like to draw your attention to some of the most common conditions which are generally overlooked in the investigation of dyspepsia.

Pregnancy.—Few of us are likely to overlook this condition as a cause of dyspepsia in young married women, if early morning vomiting is present. But in some cases there is no vomiting at all, uneasiness in the abdomen together with nausea and dislike for food being the only complaints. This nausea and dislike for food may occur at any time of the day. There is no direct relation to the taking of meals. In fact, food may temporarily alleviate the condition. Further, pregnancy may be suspected if the ordinary remedies *fail to cure the dyspepsia.*

Tuberculosis.—Pulmonary or other. All of us are perfectly familiar with the difficulty of getting tuberculous patients in advanced stages, to take their nourishment and retain it. But we generally fail to appreciate the significance of the mild degrees of chronic dyspepsia that usually occur in the very early stages of phthisis. Many patients seek our advice for dyspepsia, in whom the oncoming tuberculosis is never suspected, even on a very careful examination, because at this stage no physical signs are present. But if we encourage the patient to elaborate his complaint in detail we are likely to light upon some clue to the diagnosis, in the loss of weight, failing appetite, an inexplicable feeling of exhaustion, a *slight feeling of warmth and burning* of the eyes and possibly a little occasional cough. If we are able to establish *the diagnosis* at this stage that is the stage at which there are only a few suspicious symptoms and no physical *signs—we give the patients the best* chance for recovery under treatment. It is therefore incumbent on us to undertake *a thorough investigation of* the case, pressing into service all available methods—such as X-ray screening for restriction of movement, repeated sputum examination, and if necessary, animal inoculation.

Sometimes both the above factors, namely, pregnancy and pulmonary tuberculosis are behind the symptoms of dyspepsia. Unless a careful examination is done, one is likely to miss the more serious condition, at least for a time. A young woman of about twenty-three, was seen by me recently. She is a mother of four children. When I saw her she was very anæmic, thin, and complained of a great lack of appetite, nausea and pain in the abdomen. *This pain was irregular*; inconstant and had no relation to food. She further gave a history of two months *amenorrhœa. On examining the chest* there was well marked hæmic murmur and a slight impairment of resonance in the left apex, *with an occasional râle* at the end of inspiration. At the time there was no history of fever or cough. I thought the *amenorrhœa was* due to the severe anæmia and treated her for this. There was not much improvement in the dyspeptic condition. After two weeks the patient said the medicine had brought on severe cough and that she was at times compelled to vomit soon after a meal. She now also complained of fever, with shivering. It was now found that her uterus was enlarged and that she was in the third month of pregnancy. The sputum revealed a large number of tubercle

bacilli. I am sure that most of you would have come across similar cases.

Chronic interstitial nephritis, is a cause of dyspepsia more often than is commonly thought. When a patient past middle age manifests symptoms of dyspepsia without definite relation to meals it is well to look for corroborative evidence of nephritis such as heightened blood pressure, slight hypertrophy of the left ventricle and polyuria. I need not remind you of the fact that albumin-free urine does not contra-indicate a diagnosis of nephritis. You know that the urine may have to be examined on several occasions before a mere trace of albumin is discovered. A microscopic examination may reveal evidence of the disease more quickly. It is claimed by ophthalmic surgeons that very often they make a diagnosis of nephritis for the physician. But retinal changes are very often absent at the stage when dyspepsia is the most urgent symptom Retinal changes are later phenomena. By recognising the relationship of dyspepsia to chronic kidney disease, we can forestal the ophthalmologist. That is a small affair. But the importance of this recognition lies in the fact that it is at this stage, even before retinal changes are manifest, that by correct advice to the patient regarding habits and diet the disease can be kept in check.

Chronic appendicitis.—In children and young adults dyspepsia is often the only manifestation of a chronic appendix. In patients under twenty years, a history of symptoms which in older people may suggest duodenal ulcer, should lead to suspicion of the appendix as the offending agent. It is necessary to carefully examine the right iliac fossa for any thickening or lump or tenderness. At times diagnosis is only possible by failure to successfully treat what is supposed to be a gastric or duodenal ulcer. The absence of the classical signs of appendicitis does not contra-indicate the diagnosis. Very often a retro-caecal appendix causes dyspeptic symptoms with irritability of bladder.

Gall-Stones.—In patients over forty years and inclined to be stout, persistent dyspepsia with marked flatulence is often due to gall-stones. The group of symptoms such as heartburn, sternal distress, flatulence, nausea and vomiting are not peculiar to gall-stones. Other causes of indigestion present similar symptoms. But in gall-stones, dyspepsia there is an acute localized pain in the mid-epigastric area, which while marking it off from others, often leads gall-stones to be confounded with gastric ulcer and prodromal stages of duodenal ulcer. The other distinguishing features of this dyspepsia are the absence of definite time relation between pain and meals, pain starting at night and radiating to the right hypochondrium and right shoulder. There may be jaundice and enlargement of the gall-bladder. Morphia gives greater and prompter relief than in gastric cases. X-ray cholecystography and fractional test meals afford very considerable help in diagnosis.

Carcinoma of colon not uncommonly is a cause of dyspepsia in the old and debilitated patient. The condition may be present for years without causing any inconvenience except dyspepsia, some irregularity of the bowels, slight attacks of diarrhoea, frequent and without apparent cause. The symptoms that may suggest colon cancer as the cause of dyspepsia are flatulence, abdominal discomfort, amounting to dragging pain and mucus in stools. Laparotomy will decide the diagnosis.

Angina pectoris is often diagnosed as dyspepsia because (1) pain is often in the epigastrium, (2) flatulence and

belching frequently precede the pain, (3) the pain often comes on after meals, and (4) in the early stages of angina pectoris, the characteristic radiation of pain is not often present. It is not easy to explain why there should be belching and flatulence, nor why pain should come on after meals. But there are certain features which are distinctive of angina pectoris. They are (1) blood pressure is usually raised, (2) the pain is excited by emotion and exertion, (3) rest and peace relieves pain, and (4) amyl nitrite gives prompt relief.

Diabetes.—In some cases, diabetic coma starts with severe acute dyspepsia such as incessant uncontrollable vomiting, and acute abdominal pain. If overlooked at this stage, the case may end fatally. This lesson was severely brought home to me a few years ago. A child was admitted into my wards for enteric fever. The mother stayed in the hospital attending on her child. One day she (the mother) complained of nausea and pain in the abdomen (both epigastrium and umbilical region). In spite of the usual treatment, her condition got rapidly worse. She got comatose and died. On a review of the case, there was sugar present in the urine. But as she was young and robust and was nursing a baby, it was taken for lactosuria and no further notice was taken. But the intractable vomiting, pain and coma and death, all within three days suggest the possibility of diabetes overlooked, on account of the urgency of the dyspepsia.

Tabes dorsalis.—As in tuberculosis, so in this disease, dyspepsia may occur early and late. None would overlook the symptoms of gastric crisis that occur in well developed cases of tabes. But dyspepsia may occur in this disease before the classical signs of tabes are obvious. Presence of knee jerks and absence of Argyll Robertson pupils are not proof against a diagnosis of tabes. But we must examine the ankle jerks, the band of hyperaesthesea in the abdomen, also for the lightning pains and unsteadiness in walking in the dark. The blood and if necessary the cerebro-spinal fluid should be examined for Wassermann or Kahn tests.

Anaemias.—In severe anæmias, dyspepsia of one type of another is usually a marked feature. But in the early stages of ankylostomiasis, when anæmia is present, but not severe, patients often seek our advice for mild or severe dyspeptic symptoms, a distinctive feature of it being quite severe pain in the epigastrium. This is fairly common. It is worth while therefore to look for signs of hookworm infection in all cases of dyspepsia.

Latent amoebiasis.—In elderly patients who complain of "delicate stomachs" and "irritable bowels," that is, those who cannot take the slightest liberty with their stomachs or who from no particular cause have repeated attacks of diarrhoea alternating with constipation, it is always useful to suspect chronic amoebic infection. Unsatisfactory as is the present treatment of amoebic dysentery from the point of complete cure, it was infinitely worse before Rogers introduced emetine. Those who had the misfortune to have suffered from this disease twenty years ago should have mostly settled down into chronic amoebic carriers Now we know that latent amoebic infection is not so harmless as was at one time imagined. A course of treatment with stovarsol, systematically carried out, will convince many practitioners of the mischief done to patients by the presence of Entamœba histolytica in the intestines, even though they may not produce acute dysentery.

Sprue and Erythema multiforme.—When dyspeptic symptoms such as flatulence and fullness in the epigas-

trium, with pain or discomfort therein, is associated with stomatitis, one should eliminate the possibility of these two conditions. I do not refer to pellagra because it is not said to be found in this part of the country, though I am not quite so sure of its improbability.

I have not attempted in this paper to go exhaustively into the diagnosis of the various forms of dyspepsia, nor would I have succeeded in such an attempt. My object has been merely to invite your attention to some of the most serious diseases which could easily be overlooked on account of the urgency of only one of their manifestations and that not the most important. I am sure that my senior colleagues have at some time or other come across the various conditions I have mentioned; and it would not be long before my junior friends meet with similar experience.

INSULIN IN THE TREATMENT OF DIABETES MELLITUS

By K. C. Paul, M.B., B.S.

(*Late Research Scholar, University of Madras, Hony. Assistant Physician, General Hospital, Madras*).

The aim of treatment in diabetes mellitus is to prevent or annul any and all disability arising from the disease. This aim can be met by adhering to certain well-established principles which may be summarised as follows:—

(i) Normal values for blood sugar are the best, and in the diabetic an approach to the normal should be insisted upon; that is, the blood sugar when fasting should be within the normal limits of 0·08 per cent. and 0·12 per cent., and should not after meals rise above 0·18 per cent. The normal for urine, that is, absence of sugar, will result when this is achieved.

(ii) Ketosis is abnormal and should be prevented or abolished; at no time should the urine contain any ketone.

(iii) The diabetic has but little reserve to utilize carbohydrate, and this should never be overtaxed: the islets of Langerhans should be given a chance to recoup themselves by giving them adequate rest. Allen has shown that the islets of Langerhans become further damaged if the diet is not strictly limited in carbohydrates, fats, and protein.

(iv) The metabolic functions are best performed when the general health is good; to ensure this the patient should take exercise and regulate his habits. Exercise promotes the utilization of carbohydrate, and should therefore be insisted on.

As far as my experience goes, in the great majority of instances of diabetes in this country a regulation of the diet will suffice to achieve the desired aim, but in some the use of insulin is necessary or desirable.

The indications for the use of insulin are: (1) When the diet necessary to keep the blood sugar within normal limits is too low for the metabolic needs of the individual; (2) When complications, especially severe ketosis, infections, and coma, are present; (3) When the patient is a juvenile subject in the period of growth.

In order to determine whether a patient requires insulin, I usually adopt the following procedure:—

The dietetic needs of the individual are determined by means of the basal metabolism tables, 30 per cent. more

being added to the basal as allowance for the expenditure of energy involved in daily work. A diet is drawn up containing 0·75 gm. to 1 gm. of protein (P) for every kilogramme of body weight, and carbohydrate (C) and fat (F) in such proportion as to conform to the formula F equals or is less than $2C - \frac{1}{2}$ P (in grammes) If on this diet the patient remains aglycosuric and his blood sugar is always within normal limits, he does not require insulin; but if there is hyperglycaemia and glycosuria at any time he should be given insulin.

The amount of insulin which the patient would require can be estimated as follows: The patient is starved for a day or so and on succeeding days he is given diets of gradually increasing calorie value and the maximum diet on which he remains aglycosuric is noted. The difference in calorie value between this diet and the one necessary for his daily needs gives an indication of the amount of insulin he would require. Roughly speaking, for every 50 calories difference one unit of insulin should be given. This in on the assumption that each unit of insulin will metabolize 2 to 2·5 gm. of carbohydrate and that the diet has been worked out as mentioned before with regard to the P, C, and F content.

Insulin is best administered in divided doses, one in the forenoon and another in the evening. The diet should be so arranged that the meals containing greater amounts of carbohydrate are taken with the insulin. It is unwise to give a large dose of insulin once a day, because by this procedure it will not be possible to keep down the blood sugar throughout the twenty-four hours.

A patient receiving insulin should have his blood sugar estimated frequently. At the commencement of *the treatment it may be necessary to* have it estimated every day for a few days while fasting as well as after meals. If, however, blood chemistry is not practicable, frequent examinations of the urine will have to suffice: the urine should be collected as often as it is passed and every sample tested for sugar. If at any time there is glycosuria this is evidence that the treatment is inadequate and should be altered.

The use of insulin is imperative in cases of diabetes in which such complications as coma are present. It need not be mentioned that complications speak for bad management and improper treatment. The rule to adopt *in treating complicated diabetes is to* provide a suitable diet and to give maximal doses of insulin as often as necessary. Glucose may have to be given along with the insulin in some cases.

The complication in which the use of insulin is urgently called for is coma. The treatment of this condition may be briefly indicated:—

Immediately the diagnosis is made, give an enema and wash out the stomach, giving at the same time 40 to 60 units of insulin with 50 gm. of glucose. If practicable get the blood sugar estimated (at hourly intervals, if possible). Give plenty of fluids to drink, and keep the patient warm. Repeat insulin, the dose depending on the sugar-content of the blood and the severity of the coma, with glucose. Insulin is to be given till ketosis disappears. (If blood examinations cannot be done, examine the urine—obtaining it by catheterization, if necessary at hourly intervals.)

It is well-known that any infectious process decreases the carbohydrate tolerance of the diabetic individual;

By giving insulin the harmful effects of such lowering of tolerance can be prevented Further, insulin therapy will combat also the lowered resistance which is inherent in the diabetic tissues.

Surgical complications, such as gangrene and carbuncle, are best treated with insulin (the operation being performed only when the patient is under the influence of insulin therapy). The diabetic is a grave surgical risk; but with insulin treatment the dangers of surgical intervention are considerably diminished.

Insulin may be withdrawn or the amount reduced when the complicating condition is recovered from. When withdrawing insulin, the diet should be carefully adjusted.

Juvenile diabetes is fortunately rare in this country. It is a more serious condition than adult diabetes, and should, in all instance, be treated with insulin.

The administration of insulin, unless carefully controlled, is not without harmful effects. Insulin lowers the blood sugar rapidly; and in the diabetic subject, because of the absence of reserve carbohydrate (glycogen) in the body, more rapidly than in the normal subject. This lowering of blood sugar, if it continues beyond a certain level, that is, to below a blood sugar content of 0·05 per cent., will cause the appearance of certain untoward symptoms. These symptoms may be mild, but may go on to coma and death may result. They are due to hypoglycæmia, and can be prevented by giving glucose.

The early symptoms of insulin hypoglycæmia are: Hot flushes in the face, slight weakness of the limbs, faintness and giddiness, sweating, tremulousness, vague symptoms of apprehension, coldness of the limbs, and a sense of constriction about the throat and chest.

Patients receiving insulin should be warned of the possibility of their becoming hypoglycæmic, and told to be on the look out for any of the above mentioned symptoms. They should take, immediately they feel they are becoming hypoglycæmic, about an ounce of glucose (or sugar) dissolved in water and flavoured with a little lime juice. While treating coma it should be remembered that if proper precautions are not taken the coma of diabetes may be replaced by the coma of insulin excess; it is to prevent such an occurrence that glucose is given to the comatose patient receiving insulin.

Some diabetic patients are refractory to insulin treatment. The reason for this is not obvious.

The preparations of insulin available at the present day are many. Recently Messrs. Schering-Kahlbaum, A. G., of Germany, have put up the substance in a novel form which permits the storage for long periods without loss of strength. It is in the form of a powder which is contained in a small glass capsule. This capsule is held by the rubber cap of a bottle containing 5 c. c. of sterile water. When the rubber cap is pressed down the capsule falls into the water and the contained insulin gets dissolved, the resulting solution containing 100 units of insulin. Through the courtesy of the manufacturers I have been using this preparation for some time, and I have found it quite satisfactory. It does away with the disadvantage of the other brands of insulin, namely, that they deteriorate on keeping (being in solution) in this country.